

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (Canceled)
2. (Currently amended) An optical device of Claim ~~4~~11 wherein said ferroelectric liquid crystal material has a phase sequence of Isotropic – Nematic – Smectic A – Smectic C\* – Crystalline states.
3. (Currently amended) An optical device of Claim ~~4~~11 wherein said ferroelectric liquid crystal material having a cone angle  $\theta$ , said non-zero angle  $\Omega$  has a predetermined value such that  $\Omega \geq 2\theta$  and  $\Omega \neq 180^\circ$ .
4. (Currently amended) An optical device of Claim ~~4~~11 wherein said first and second alignment treatments are specifically chosen so as to specifically induce pretilt angles of  $\alpha_1$  and  $\alpha_2$ , respectively.
5. (Original) An optical device of Claim 4 wherein said first alignment treatment includes a coating of a selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of  $\alpha_1$ .
6. (Original) An optical device of Claim 5 wherein said second alignment treatment includes a coating of another selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of  $\alpha_2$ .
7. (Original) An optical device of Claim 4 wherein each of said pretilt angles is at most  $10^\circ$ .
8. (Original) An optical device of Claim 4 wherein said first and second alignment treatments are generally identical.
9. (Currently amended) An optical device of Claim ~~4~~11 wherein said first and second alignment treatments provide strong molecular anchoring of at least portions of the ferroelectric liquid crystal material located immediately adjacent to the treated surfaces of the first and second substrates.
10. (Canceled)
11. (Currently amended) An optical device of ~~Claim 4~~Claim 10 including a

ferroelectric liquid crystal material, said optical device comprising:

a first and a second substrate;

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle  $\alpha_1$  with respect to a plane parallel to said first substrate;

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle  $\alpha_2$  with respect to a plane parallel to said second substrate;

a light input directed at said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and

means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state;

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle  $\Omega$  with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device;

wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

12. (Currently amended) An optical device of Claim 411 wherein said first substrate includes a reflective surface.

13. (Previously presented) An optical system comprising:

an optical device including

a ferroelectric liquid crystal material,

a first and a second substrate,

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle  $\alpha_1$  with respect to a plane parallel to said first substrate,

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle  $\alpha_2$  with respect to a plane parallel to said second substrate, and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle  $\Omega$  with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device;

a light input directed at said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and

means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

Claims 14-24 (Canceled)

25. (Previously presented) An optical device including a ferroelectric liquid crystal material, said optical device comprising:

a first and a second substrate;

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle  $\alpha_1$  with respect to a plane parallel to said first substrate;

a second alignment treatment applied to a surface of the second substrate, said

second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle  $\alpha_2$  with respect to a plane parallel to said second substrate; and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle  $\Omega$  with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device; and

wherein the ferroelectric liquid crystal material in the optical device is surface stabilized.

26. (Canceled)

27. (New) An optical device of Claim 13 wherein said ferroelectric liquid crystal material has a phase sequence of Isotropic – Nematic – Smectic A – Smectic C\* – Crystalline states.

28. (New) An optical device of Claim 13 wherein said ferroelectric liquid crystal material having a cone angle  $\theta$ , said non-zero angle  $\Omega$  has a predetermined value such that  $\Omega \geq 2\theta$  and  $\Omega \neq 180^\circ$ .

29. (New) An optical device of Claim 13 wherein said first and second alignment treatments are specifically chosen so as to specifically induce pretilt angles of  $\alpha_1$  and  $\alpha_2$ , respectively.

30. (New) An optical device of Claim 29 wherein said first alignment treatment includes a coating of a selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of  $\alpha_1$ .

31. (New) An optical device of Claim 30 wherein said second alignment treatment includes a coating of another selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of  $\alpha_2$ .

32. (New) An optical device of Claim 29 wherein each of said pretilt angles is at most  $10^\circ$ .

33. (New) An optical device of Claim 29 wherein said first and second alignment treatments are generally identical.

34. (New) An optical device of Claim 13 wherein said first and second alignment treatments provide strong molecular anchoring of at least portions of the ferroelectric liquid crystal material located immediately adjacent to the treated surfaces of the first and second substrates.

35. (New) An optical device of Claim 13, further including:  
a light input directed at said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and  
means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state.

36. (New) An optical device of Claim 13, wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

37. (New) An optical device of Claim 13 wherein said first substrate includes a reflective surface.

38. (New) An optical device of Claim 25 wherein said ferroelectric liquid crystal material has a phase sequence of Isotropic – Nematic – Smectic A – Smectic C\* – Crystalline states.

39. (New) An optical device of Claim 25 wherein said ferroelectric liquid crystal material having a cone angle  $\theta$ , said non-zero angle  $\Omega$  has a predetermined value such that  $\Omega \geq 2\theta$  and  $\Omega \neq 180^\circ$ .

40. (New) An optical device of Claim 25 wherein said first and second alignment treatments are specifically chosen so as to specifically induce pretilt angles of  $\alpha_1$  and  $\alpha_2$ , respectively.

41. (New) An optical device of Claim 40 wherein said first alignment treatment includes a coating of a selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of  $\alpha_1$ .

42. (New) An optical device of Claim 41 wherein said second alignment treatment includes a coating of another selected alignment material, said coating being applied,

cured and treated so as to specifically induce the pretilt angle of  $\alpha_2$ .

43. (New) An optical device of Claim 40 wherein each of said pretilt angles is at most  $10^\circ$ .

44. (New) An optical device of Claim 40 wherein said first and second alignment treatments are generally identical.

45. (New) An optical device of Claim 25 wherein said first and second alignment treatments provide strong molecular anchoring of at least portions of the ferroelectric liquid crystal material located immediately adjacent to the treated surfaces of the first and second substrates.

46. (New) An optical device of Claim 25, further including:  
a light input directed at said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and  
means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state.

47. (New) An optical device of Claim 25, wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

48. (New) An optical device of Claim 25 wherein said first substrate includes a reflective surface.